6 Program Administration

Chapter 2 outlines the planning process and results, while this chapter discusses how the plans are executed in the program. Chapter 6 also discusses evaluation as a key input and output of each step in managing the program.

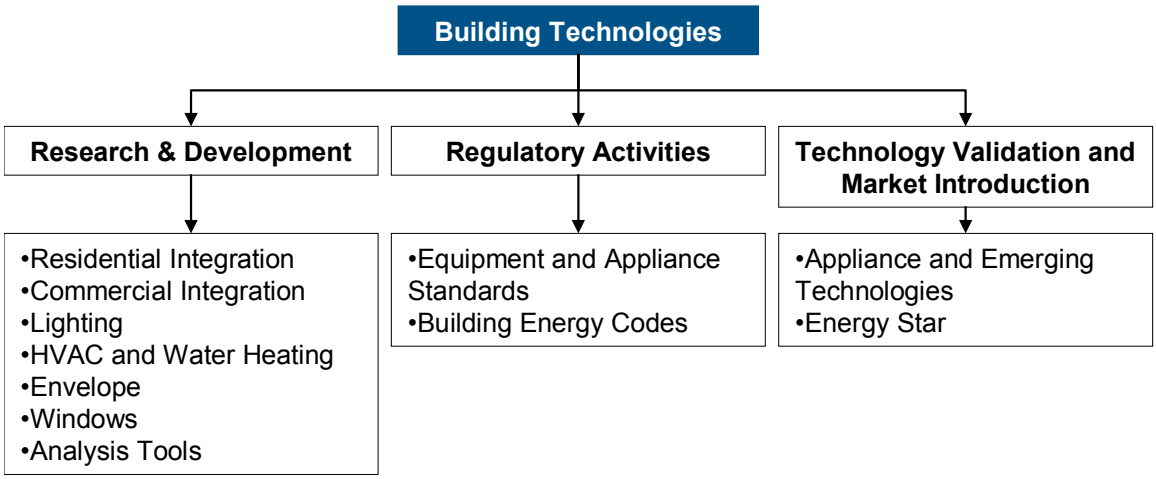
6.1 Organizational Structure

The BT management approach is focused on the following management principles:

- A vertical organization with clear lines of responsibility and authority
- Top-down program (to project) planning from conception to technology validation, and time-phased technical, cost and schedule baselines
- Centralization of key functions to ensure effective integration of the projects
- Independent program control systems ensuring maximum visibility/transparency

The organizational structure of the DOE Building Technologies Program follows the management principles and is shown in Figure 6-1. The Program has a vertical organization around the three strategies for achieving the BT goal. Activities fall under one of the three strategies. Program management of the activities takes place at DOE Headquarters in Washington, D.C.

Figure 6-1 Building Technologies Organizational Chart



Management of projects within the activities is conducted in field locations, namely the National Energy Technology Laboratory (NETL). Projects are conducted at the national laboratories, with industry and universities, and through coalitions with state and local government agencies.

6.2 Program Management and Funding Mechanisms

6.2.1 Project Selection Process

To select projects, BT develops an Annual Operating Plan (AOP), which describes:

- Tasks to be pursued in the upcoming fiscal year;
- Resource allocations to performers;
- Outputs (annual targets and quarterly milestones) and delivery dates; and
- Causal linkage between program outputs and contributions to program goals and objectives.

The President's Budget Request forms the planning framework within which the AOP is developed. The Budget Request provides substantial detail as to planned activities and potential resources, and establishes the resource levels that constrain statements of need to which proposers respond. However, until the budget authorization is complete, the AOP is considered a draft working document.

The Technology Development Managers, using results from Multi-Year planning, determine the projects required in the upcoming execution year to achieve the near-term targets. While only Joule targets are displayed in the Budget Request, all projects funded have targets and quarterly milestones. Some of the targets will be achieved by follow-on tasks to project tasks funded in prior fiscal years. Others will require the initiation of new projects or tasks within those projects. All will require the identification of specific tasks, applicable funding requirements, and the timing of the funding obligations.

In some cases, work performer and/or procurement vehicles will be known, while some activities will be Congressionally directed to be performed by specified entities. However, to the extent possible, BT uses a competitive process to solicit the best projects and most cost-effective methods for achieving performance targets along technical pathways. Competitive solicitations may be formulated as soon as the Administration's budget request is submitted in February. BT also encourages an informal "competition of ideas" among DOE laboratories and contractors to bring forth new ideas that address the needs of technical pathways contained in this multi-year plan.

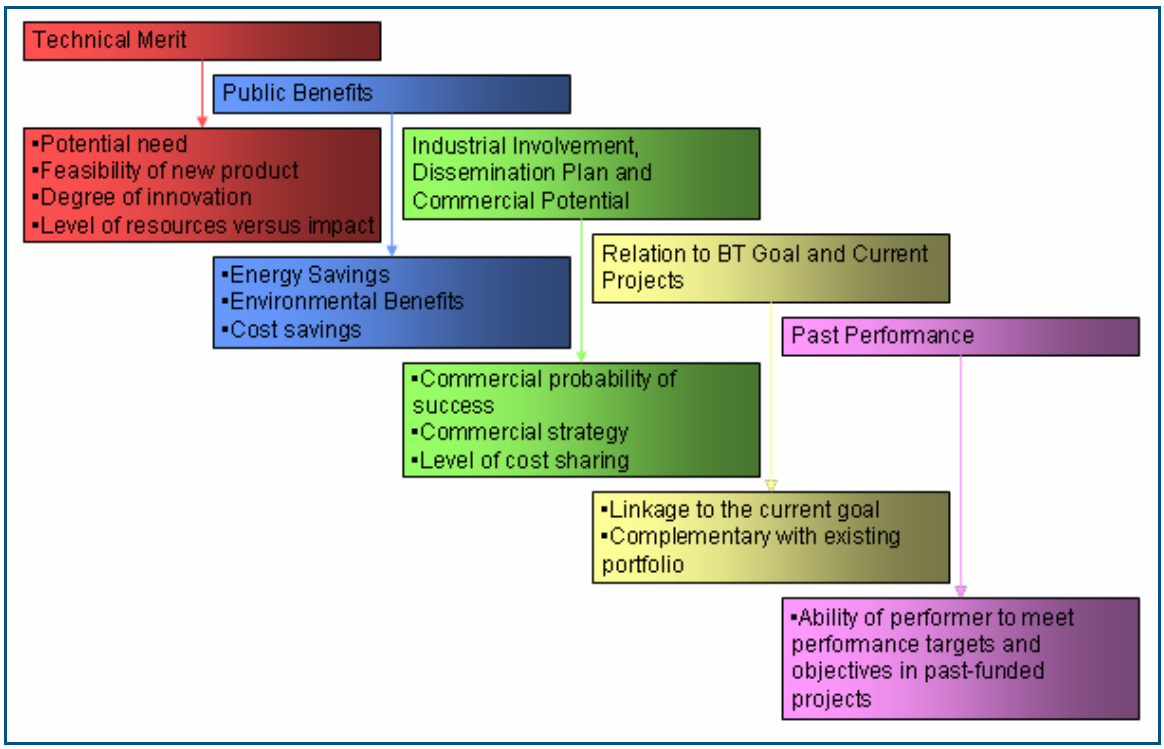
The set of potential projects includes all ongoing R&D projects as well as all new project proposals. R&D resources can be divided into manpower, facilities, and financial resources. The decision process is based on established criteria. Each project must provide data and supporting analyses that allow the project to be evaluated against these criteria. The format, timing, and calculation of benefits of proposals are all part of a standard developed in BT. Incomplete or missing information, or late submission, means that the project cannot be part of the selection pool. There is a 30-day call for proposals in the April timeframe.

In implementing the President's Management Agenda, BT uses objective investment criteria for selection of individual project activities (project selection criteria) as well as

for prioritizing and integrating the overall portfolio (portfolio criteria, discussed in Chapter 2). These combined criteria focus the program's portfolio on technologies that address national energy policy goals, provide clear public benefits, and that would not be developed by the private sector alone. The application of these criteria addresses the need for performance-based public-private partnerships, well-defined comprehensive program plans, and clear "off-ramps" or termination points.

In addition to management judgment and discretion, the projects are selected against the set of criteria in Figure 6-2.

Figure 6-2 Project Selection Criteria



After individual proposals are scored against the selection criteria (May timeframe), the next step in the process is to examine the selected candidates against the portfolio criteria, to assure adherence to established priorities and resource constraints. This process may take the form of establishing separate competition pools for proposals, or a re-ranking of proposals based on portfolio criteria.

The initial proposal selection process is completed in June so that formulation of the draft AOP can begin. Actual project awards are not made until Congress passes and the President signs the appropriation bill into law. Ideally, this should happen in late August or early September. At this point, the AOP is finalized.

When the final tasks, performers, and resources are known, a spend plan is developed. The spend plan is a simplified version of the AOP, but provides additional detail as to specific performers, tasks, and resources. The spend plan is primarily a management tool for procurement. The AOP remains the controlling document against which projects are

tracked and evaluated. The AOP is also the source of information for generating Work Authorizations and Program Guidance Letters to the field.

6.2.2 Partnership and Stakeholder Roles

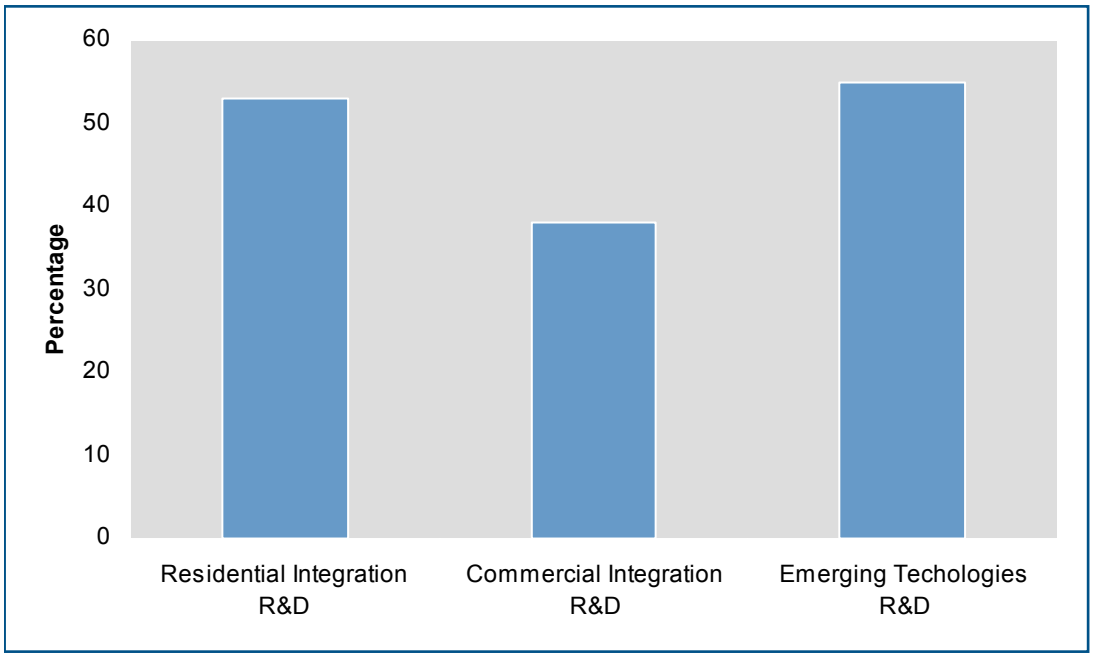
Partnership and collaboration with industry, universities, and other government agencies are a key aspect of the program's management approach. By bringing together relevant stakeholders, the program has been able to build toward the collaboration necessary to address many of the barriers to increasing the energy efficiency of buildings and equipment. As mentioned, a critical barrier is the fragmentation of the design, construction, materials, and equipment manufacturers and building operation and maintenance industries, making it difficult to reach a consensus on new technologies or coordinate efforts on concepts like whole building design.

The Building Technologies Program funds research, development, and demonstration activities linked to public-private partnerships. The government's current focus is to concentrate funding on high-risk, pre-competitive research in the early phases of development. As activities progress through the stages of developing technology to validating technical targets, the government's cost share will diminish. Ideally, government-sponsored research and development will bring technologies to the point where the private sector can successfully integrate them into buildings and then decide how best to commercialize technologies. BT has worked with other DOE programs and offices to complement our research and to implement our strategies, as well as with Federal partners, including the Department of Housing and Urban Development, the Environmental Protection Agency, the National Institute of Standards and Technology, among others.

Additionally, through our competitive solicitation, BT requires a significant amount of cost-share from our partners as part of the award, and our Building America activity forms teams of architects, engineers, builders, equipment manufacturers, material suppliers, community planners, mortgage lenders, and contractor trades. Currently, there are seven Building America teams who have worked with over 500 different industry partners.

A recent review of the level of cost sharing for the program showed significant levels of cost sharing. In the 2001 Strategic Program Review, the three major activities in BT achieved the following cost sharing in Figure 6-3.

Figure 6-3 Cost Sharing (2001)[1]



Partnerships and cost share arrangements with industry, universities, and other government agencies are a key aspect of BT's success in developing the technical capability needed for marketable ZEBs. Bringing together relevant stakeholders builds the critical mass necessary to address many of the barriers to increasing the energy efficiency of buildings.

One particular process used to ensure industry and stakeholder involvement is the development of technology roadmaps (see Figure 6-4). The technology roadmap process is a fundamental component of BT's approach. Roadmaps are used to help align government resources with the high-priority needs identified by industry. The roadmaps also are used to guide cooperation among public and private researchers, State and Federal agencies, and others involved in helping to achieve the

Figure 6-4 Technology Development Roadmaps[2]

Sector	Date
Appliances	Under development
Building Envelope Technology	2001
HVAC and Refrigeration (in cooperation with ARI)	1997
High Performance Commercial Buildings	2000
Lighting Controls Sub-map	Under development
Residential Buildings (in cooperation with PATH)	2000
Solid State Lighting	2002
Vision 2020: Lighting Technology	2000
Window Industry Technology	2000
Window and Envelope Updates	2002

[1] Commercial Buildings R&D includes analysis tools and design strategies.
[2] Roadmap documents are available on-line at: http://www.eere.energy.gov/buildings/tech/roadmaps.html.

technology goals. BT has been active in developing eight technology roadmaps, as well as supporting two others.

6.3 Cost Management and Monitoring

Technology Development Managers utilize the Annual Operating Plan as a basis for cost management and monitoring. The AOP establishes funding, annual performance targets and quarterly milestones by task, and performers report progress and costs against those through the Project Management Center at the National Energy Technology Center. All targets, milestones and costs are tracked through the EERE Corporate Planning System, and select targets and milestones are tracked through the DOE Joule Performance Management System.

6.4 Communication and Outreach

The Building Technologies Program supports a wide range of activities designed to facilitate widespread adoption and use of energy-saving technologies and practices. Through building project profiles, developing enabling technologies, regulatory activities, and awards and recognition, BT provides the information and assistance needed to help homeowners and business owners, architects and engineers, community planners and consumers make smart choices about energy. Some examples are listed below:

- Building Projects: Building designers and decision makers can learn how others are implementing the latest energy technologies and green building practices by visiting the High Performance Buildings database. The Building America projects database provides information on the energy-efficient homes built through Building America research projects. Zero Energy Building projects demonstrate the first steps toward designing and constructing homes that produce as much energy as they use.

- Enabling Technologies: Building Energy Software Tools help researchers, designers, architects, engineers, builders, code officials, and others to evaluate and rank potential energy-efficiency technologies and renewable energy strategies.

The High Performance Buildings Database seeks to improve building performance measuring methods by collecting data on various factors that affect a building's performance, such as energy, materials, and land use.

In February 2005, the U.S. Department of Energy announced new display unit labeling guidelines for manufacturers and retailers of windows, doors, and skylights.

- Regulatory Activities: Building Energy Codes also works with other government agencies, state and local jurisdictions, national code organizations, and industry to help develop improved national model energy codes. To improve appliance and equipment standards, the Building Technologies Program participates in rulemaking and product test procedures.

- Recognition: ENERGY STAR products and partnerships help businesses and consumers easily identify highly efficient products, homes, and buildings that save energy and money, while protecting the environment. ENERGY STAR works with manufacturers, national and regional retailers, state and local governments, and utilities to establish energy efficiency criteria, label products, and promote the manufacture and use of ENERGY STAR products.